

AMENDMENTS TO THE CLAIMS

The listing of claims will replace all prior versions, and listings, of claims in the application. The language to be added is shown with an underline, and the language to be deleted is shown with a strikethrough.

1. (Previously presented) A transposon-based vector comprising an isolated polynucleotide sequence encoding:
 - a) a gene operably linked to a first promoter, the gene encoding for a transposase; and,
 - b) one or more genes of interest operably-linked to one or more additional promoters, wherein the one or more genes of interest and their operably-linked promoters are flanked by transposase insertion sequences recognized by the transposase, and wherein the first promoter and the one or more additional promoters are cell-specific promoters or constitutive promoters.
2. (Previously presented) The transposon-based vector of claim 1, further comprising a polyA nucleotide sequence located 3' to the one or more genes of interest.
3. (Previously presented) The transposon-based vector of claim 2, wherein the polyA nucleotide sequence is optimized for production of a protein, peptide or nucleic acid encoded by the one or more genes of interest.
4. (Original) The transposon-based vector of claim 1, wherein the one or more genes of interest code for a protein, a peptide or a nucleic acid.
5. (Previously presented) The transposon-based vector of claim 1, wherein the one or more genes of interest encodes for a nucleic acid which inhibits transcription.

6. (Previously presented) An isolated polynucleotide sequence comprising:
 - a) one or more genes of interest operably-linked to one or more promoters;
 - b) a poly A nucleotide sequence located 3' to the one or more genes of interest; and,
 - c) transposase insertion sequences recognized by a bacterial transposase, wherein the one or more genes of interest and their operably-linked promoters are flanked by the transposase insertion sequences and the one or more additional promoters are cell-specific promoters or constitutive promoters.
7. (Original) The isolated polynucleotide sequence of claim 6, wherein the one or more genes of interest code for a protein, a peptide or a nucleic acid.
8. -12. (Canceled)
13. (Withdrawn) A method of providing gene therapy to an animal or a human comprising administering to the animal or the human the transposon-based vector of Claim 1.
14. (Previously presented) The transposon-based vector of claim 1, further comprising at least one of: (a) a Kozak sequence positioned so as to include at least the first codon of the transposase gene; (b) two stop codons operably-linked to the transposase gene; (c) a modified transposase gene sequence, wherein at least one of the first twenty codons of the transposase gene is modified by changing a nucleotide at a third base position of the codon to an adenine or thymine without modifying the amino acid encoded by the codon; or (d) a polyA sequence operably-linked to the transposase gene.
15. (Withdrawn) The method of claim 13, wherein the gene of interest codes for production of a protein, peptide or nucleic acid.

16. (Withdrawn) The method of claim 13, further comprising a polyA sequence located 3' to the one or more genes of interest.

17. (Withdrawn) The method of claim 13, wherein the gene therapy comprises production of a protein, peptide or nucleic acid encoded by the one or more genes of interest in the animal or the human.

18. (Withdrawn) The method of claim 13, wherein the administration is effective to treat a disease or a condition.

19. (Withdrawn) The method of claim 13, wherein the administration of the transposon-based vector results in a transfection efficiency of at least 40%.

20. (Withdrawn) The method of claim 13, wherein the administration occurs through the vascular system.

21. (Cancelled)

22. (Previously presented) A composition comprising the transposon-based vector of claim 1 and a carrier suitable for administration to an animal or a human .

23. (Canceled)

24. (Withdrawn) The method of claim 13, wherein the transposon-based vector comprises at least one of: (a) a Kozak sequence positioned so as to include at least the first codon of the transposase gene; (b) two stop codons operably-linked to the transposase gene; (c) a modified transposase gene sequence, wherein at least one of the first twenty codons of the transposase gene is modified by changing a nucleotide at a third base position of the

codon to an adenine or thymine without modifying the amino acid encoded by the codon; or
(d) a polyA sequence operably-linked to the transposase gene.

25. (Withdrawn) The method of claim 17, wherein the nucleic acid is an inhibitory RNA.